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***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1, 2, and 12 in the reply filed on 1/24/08 is acknowledged. The traversal is on the ground(s) that an additional technical feature was not considered in the Office Action, namely, that all the claims require either a coating with polyasparaginic acid or precipitation in the presence of polyasparaginic acid.

Applicant's arguments traversing the restriction requirement are acknowledged.

The expression "special technical feature" is defined in PCT Rule 13.2 as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art. The determination is made on the contents of the claims as interpreted in light of the description and drawings (if any). Whether or not any particular technical feature makes a "contribution" over the prior art and therefore constitutes a "special technical feature," should be considered with respect to novelty and inventive step.

Therefore, Applicant's attention is directed to US Patent 6,218,459, which teaches pigment pastes (such as metal oxides) dispersed in polyaspartic acid derivatives.

2. The inventions listed as Groups I-III, in the Office Action dated 12/27/07, are drawn to nanoparticulate metal oxides surface modified with polyasparaginic acid. The special technical feature common to all of the groups cannot be considered a patentable advance over the art given that said feature, namely the surface-modified nanoparticulate metal oxide, is old. US 6,218,459, cited in the

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International Search Report dated 27 September 2005 (mailed 11 October 2005), discloses pigment pastes (such as titanium dioxide; see col. 7, line 31) dispersed in polyaspartic acid derivatives in salt form (col. 7, lines 1-2 and Examples 4 to 6); such a dispersion would inherently modify the surface of the titanium dioxide with the polyaspartic acid derivatives.

**Therefore the restriction is still deemed proper.**

3. A telephone call was placed to Mr. Thor B. Nielsen on 2/22/08, asking if Applicants would prefer to maintain the original election in the response filed 1/24/08 and have the Examiner include the new reference (cited above) with the next Office action, to which Mr. Nielsen agreed.
4. Claims 3-11 and 13-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1/24/08.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**8. Claims 1, 2, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanner et al., US Patent 5,827,508, in view of Stalberg et al., US 2003/0155668, and Mazo et al., US Patent 5,939,518.**

The claimed invention is drawn to a surface-modified nanoparticulate metal oxide, wherein the surface modification comprises a coating with polyasparaginic acid with a molecular weight  $M_w$  of from 1000 to 100 000, and the metal oxide particles have an average primary particle diameter of from 5 to 10 000 nm, as taught in claim 1.

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Tanner et al. teach compositions having enhanced stability that are useful for protecting human skin from the harmful effects of UV radiation, comprising a surface-treated zinc oxide (see col. 2, lines 48-56). The surface-treated zinc oxides have a mean particle size preferably from about 0.01 to about 10 microns (i.e., from about 10 to about 10,000 nm), and more preferably from about 0.01 to about 2 microns (i.e., from about 10 to about 2,000 nm) (see col. 6, lines 36-42). The surface treatment materials useful for treating the zinc oxide particles include amino acids (col. 6, lines 65-67).

Tanner et al. do not specifically teach that the amino acid is polyasparaginic acid.

Stalberg et al. teach methods for producing nanoparticles suspensions having an average particle diameter of between 5 to 500 nm, wherein the nanoparticle substances preferred are the substances used in cosmetic preparations such as UV protection factors (paragraph 16). The suspensions are surface modified by dispersants, also known as protective colloids, such as polyaspartic acid (paragraphs 25 and 43).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select the polyaspartic acid surface modifier of Stalberg et al. as the amino acid surface treatment material of Tanner et al., thus arriving at the claimed invention, with a reasonable expectation of success. One would have been motivated to do so because both compositions are drawn to nanoparticulate suspensions of UV protection factors, and the composition of Stalberg et al. results in improved properties of "particularly high stability in

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storage, i.e. neither agglomerate nor sediment, even under heat stress" (paragraph 61).

Stalberg et al. is silent with respect to the specific molecular weight of the polyaspartic acid.

However, Mazo et al. teach that polyaspartates are becoming increasingly useful as additives for cosmetics and personal care products (col. 1, lines 14-17), and having "desired high molecular weight" (col. 1, lines 41-42), namely  $M_w$ , in the range of 10,575 – 17,231 (col. 5, lines 28 – 48).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select the molecular weight of the polyaspartic acids taught in Mazo et al. for the polyaspartic acid surface modifiers of Stalberg et al. One would have been motivated to do so since Mazo et al. teach that high molecular weights of polyaspartic acid are desired. A skilled artisan would reasonably expect success from the selection of the high molecular weight polyaspartic acids of Mazo et al. for the polyaspartic acid surface modifiers of Stalberg et al. because both compositions are drawn to using polyaspartic acid in cosmetics and personal care products (such as UV protective factors).

With respect to claim 2, Tanner et al. teach a surface-treated zinc oxide (col. 2, lines 55-56).

With respect to claim 12, Tanner et al. teach that the compositions of the present invention are useful for providing protection to human skin from the harmful effects of UV radiation (col. 15, lines 34-36), and may include other cosmetic ingredients (col. 14, lines 54-62).

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***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA FRAZIER whose telephone number is (571)270-3496. The examiner can normally be reached on Monday-Thursday 9am-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571)272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BSF

/Sharmila Gollamudi Landau/  
Primary Examiner, Art Unit 1611

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